

# TITLE: IMPROVED STRUCTURE OF CONNECTOR

## BACKGROUND OF THE INVENTION

### 1. Field of the invention

The present invention is related to an improved structure  
5 of connector, and especially to such a connector structure  
capable of fast and sure in fixing and positioning.

### 2. Description of the Prior Art

Generally, such a connector is used to insertion connect  
connecting devices (for example, hard disks etc. are insertion-  
10 connecting devices). Such a connector is provided on an  
electronic device, and is provided therein with a group of pins  
to connect with electric lines, in order that insertion  
connecting of a connecting device can make the electronic device  
read the memory data stored in some portable connecting devices,  
15 thereby a connecting device with good connecting effect can  
substantially influence the effect of reading of the connecting  
device.

A conventional connecting device is composed of an  
insertion-connecting socket unit and a base, locking holes are  
20 provided on the insertion-connecting socket unit and the base,  
so that locking elements can be extended through the locking  
holes to lock the connecting device onto an electronic device,  
and the inner pin group of the connecting device and the electric  
lines of the electronic device can be connected mutually, hence  
25 when the connecting device performs the operations of insertion

and extraction on a connector, the insertion-connecting socket unit and the base are subjected to loosening, and even to inefficient reading.

#### SUMMARY OF THE INVENTION

5       Accordingly, in view of the above stated long existing defects including inferior effect of positioning and being subjected to loosening to affect the effect of reading, the inventor of the present invention developed the improved structure of connector to get rid of the defects resided in the  
10 conventional connecting devices based on his professional experience of years in studying, designing and manufacturing same kind of products and after hard study as well as repeated experiments and tests.

          Therefore, the improved structure of connector of the  
15 present invention at least comprises an insertion-connecting socket unit, a lower lid, a metallic housing for an insertion slot, a group of pins and a plurality of metallic covers; it is characterized by that: the insertion-connecting socket unit has on the two lateral sides thereof protruding engaging posts which  
20 have therebeneath recesses, the lower lid has at the two lateral sides thereof columns which are provided on their inner sides with engaging grooves in corresponding in position to the protruding engaging posts, the engaging grooves are provided with protruding engaging blocks in corresponding in position to  
25 the recesses, thereby, the insertion-connecting socket unit and

the lower lid can get their effects of positioning and fixing by fixed engagement of the protruding engaging posts with the engaging grooves as well as the recesses with the protruding engaging blocks.

5       The object of the present invention is to get the effects of positioning and fixing of the insertion-connecting socket unit and the lower lid by fixed engagement of the protruding engaging posts with the engaging grooves as well as the recesses with the protruding engaging blocks provided on the two lateral  
10   sides respectively of the insertion-connecting socket unit and the lower lid.

Another object of the present invention is to provide on mutually corresponding positions of the insertion-connecting socket unit to the metallic housing for an insertion slot  
15   respectively with insertion dents and engaging strip portions, in order that the metallic housing can be fixed on the insertion-connecting socket unit by insertion connecting of the insertion dents with the engaging strip portions.

Another object of the present invention is to provide  
20   insertion dents and engaging strip portions respectively on positions for connection of the columns at the two lateral sides of the lower lid to the metallic covers, in order that the metallic covers can be fixed on the columns of the lower lid by insertion connecting of the insertion dents and the engaging  
25   strip portions.

A further object of the present invention is to provide round holes of which the centers are to be aligned mutually respectively on the columns at the two lateral sides of the lower lid and on the metallic housing for the insertion slot, in order  
5 that locking elements can extend through the mutually aligned round holes to lock them on an electric circuit board.

The present invention will be apparent in its contents and effects after reading the detailed description of the preferred embodiment thereof in reference to the accompanying drawings.

#### 10 BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an analytic perspective view of the present invention;

Fig. 2 is a schematic perspective view showing the backside of the present invention;

15 Fig. 3 is a schematic sectional view of the present invention;

Fig. 4 is a schematic sectional view showing a part of the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

20 Referring to Figs. 1 and 2, the improved structure of connector of the present invention at least comprises an insertion-connecting socket unit 10, a lower lid 20, a group of pins 30, a metallic housing 40 for an insertion slot, and a plurality of metallic covers 50, wherein:

25 The insertion-connecting socket unit 10 has on the two

lateral sides thereof protruding engaging posts 11 which have therebeneath recesses 12; a group of pin jacks 13 are provided on the end of the insertion-connecting socket unit 10 for connecting with the group of pins 30, the insertion-connecting  
5 socket unit 10 is provided on the upper and the lower areas on the two lateral sides thereof in opposition to the metallic housing 40 with insertion dents 14.

The lower lid 20 has at the two lateral sides thereof columns 21 which are provided on their inner sides with engaging grooves  
10 22 and protruding engaging blocks 23 to be in corresponding in position respectively to the protruding engaging posts 11 and the recesses 12 of the insertion-connecting socket unit 10; and the lower lid 20 has in corresponding to the group of pins 30 a group of pin holes 24, the columns 21 each has on the upper  
15 and lower ends thereof insertion dents 25.

The group of pins 30 are composed of a lot of pins 31 in corresponding to the group of pin jacks 13 of the insertion-connecting socket unit 10 and to the group of pin holes 24 of the lower lid 20.

20 The metallic housing 40 for an insertion slot is provided on the outside of the insertion-connecting socket unit 10, and is provided thereon in corresponding in position to the insertion dents 14 of the insertion-connecting socket unit 10 with engaging strip portions 41.

25 The metallic covers 50 are provided on the columns 21 of the

lower lid 20, and are provided thereon in corresponding in position to the insertion dents 25 of the columns 21 with engaging strip portions 51.

When in assembling, the group of pins 30 are respectively  
5 inserted into the group of pin jacks 13 of the insertion-connecting socket unit 10 and the group of pin holes 24 of the lower lid 20; and after positioning of the group of pins 30, the engaging grooves 22 of the lower lid 20 are in corresponding in position to the protruding engaging posts 11 of the insertion-  
10 connecting socket unit 10, thereby the insertion-connecting socket unit 10 can be insertion connected to the lower lid 20, and the recesses 12 on the insertion-connecting socket unit 10 can be engaged exactly with the protruding engaging blocks 23 of the lower lid 20. Thereby, the insertion-connecting socket  
15 unit 10 and the lower lid 20 can be connected to each other, and the effects of positioning and fixing can be achieved.

Then the metallic housing 40 is engaged with the insertion dents 14 on the two lateral sides of the insertion-connecting socket unit 10 by means of the engaging strip portions 41, so  
20 that the metallic housing 40 can be fixedly engaged with the insertion-connecting socket unit 10; and the metallic covers 50 are fixed on the columns 21 at the two lateral sides of the lower lid 20 by insertion connecting of the engaging strip portions 51 with the insertion dents 25.

25 The metallic housing 40 and the columns 21 at the two lateral

sides of the lower lid 20 are provided with first round holes 42 and second round holes 26 respectively of which the centers are to be aligned mutually, the first round holes 42 and the second round holes 26 are locked with locking elements 60.

5 Referring to simultaneously to Figs. 3 and 4, when the connector is fixed on an electric circuit board 70, it uses mainly the first round holes 42 and the second round holes 26 formed on the columns 21 at the two lateral sides of the lower lid 20 and the metallic housing 40 respectively, and uses the  
10 locking elements 60 to extend through the first round holes 42 and the second round holes 26 to lock itself on the electric circuit board 70. In this mode, not only the effects of positioning and fixing of the connector can be achieved, but also the insertion-connecting socket unit 10 and the lower lid 20 can  
15 be connected with each other by fixed engagement of the recesses 12 with the protruding engaging blocks 23.

The names of the members composing the present invention are only for illustrating a preferred embodiment of the present invention, and not for giving any limitation to the scope of the  
20 present invention. It will be apparent to those skilled in this art that various equivalent modifications or changes made to the present invention without departing from the spirit of this invention shall fall within the scope of the appended claims.